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Conference Abstract

Opening-up Crépin's Rose Herbarium by New Technologies: a Pilot Project

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Abstract

The collections of Meise Botanic Garden comprise extensive and varied documentation on the genus *Rosa*. The library collection contains valuable and often rare 19th century publications about the genus *Rosa*, frequently with annotations by François Crépin. In addition to this, the archives hold the unpublished manuscripts and thousands of letters from Crépin's correspondents reflecting the extraordinary scientific network he built up to facilitate the exchange of herbarium collections together with erudite discussions on the taxonomy of the genus *Rosa*. Crépin exchanged letters with all the important rhodologists of his time, such as E. Burnat, H. Christ, P.A. Déséglise, P.E. Parmentier, H. Takashima, and W. Wirtgen, and also with horticulturists, such as J. Gravereaux.

This unique network and diversified patrimony of historical collections took shape over a period of several decades during which Crépin prepared a monograph of the genus *Rosa* that unfortunately was never finished. Crépin assembled a 19th century herbarium with ca. 40 000 specimens of the genus *Rosa*. In contrast to other important herbaria, the Crépin collection covers the whole natural area of distribution of *Rosa* and documents an unparalleled range of Rose taxa.

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The combination of documentary sources of several different types makes the collections of Meise Botanic Garden extremely valuable. They offer great opportunities for multidisciplinary studies by taxonomists and historians with the aim of solving the still insufficiently understood relations between taxa in the genus *Rosa*. Linking this unique heritage of Meise Botanic Garden with present-day molecular techniques promises rewarding research in the near future. We can conclude that the collections related to Roses are major masterpieces of the Garden.

In 2016 the Piaget Foundation, the World Federation of Rose Societies and 'De Vrienden van de Roos', supported the Botanic Garden with a grant which allowed us to image 13 000 out of the 40 000 herbarium sheets. The public is invited to help us generate the label data on the Garden's crowdsourcing platform (https://www.doedat.be/). In this project we tested also the quality of extracted DNA of 96 specimens of the Crépin Herbarium. 69% of the samples yielded with the Nanodrop technology good quality and quantity of DNA and for 29% of the samples it was even possible to amplify the rDNA gene marker ITS (with 650bp). These results are encouraging and illustrate that this historic herbarium could be a useful tool for research on roses.

Keywords

Roses, historical collections, Crépin, Rosa, manuscripts, DNA, molecular studies, herbarium

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